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ABSTRACT

The present study examined the impact of an experience with adults in sex-role reversed occupations upon elementary school children's sex-stereotyped beliefs. Subjects were 68 children in first, third, and fifth grades from a parochial elementary school in San Leandro, California. The adult occupations test, a paper and pencil assessment instrument designed to measure the sex-role flexibility of children's occupational stereotypes, was used for both the pre- and post-tests. One week after the pre-test, the treatment phase of the study was implemented. Half the males and half the females from each grade listened to talks by a male nurse and a female firefighter. The other half of the children listened to two "sex-role appropriate" adults in the same occupations. Post-tests were administered immediately after the talks. No significant treatment effect was noted, but the trends by age and sex occurred in the expected direction, i.e., average stereotyping scores decreased as subjects' age increased, and boys were more stereotyped than were girls. Item analyses indicated the possibility of specific occupation effects as a result of the treatment. (Author/RH)

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OCCUPATIONAL STEREOTYPING IN ELEMENTARY SCHOOL CHILDREN

A thesis submitted to the faculty of
San Francisco State University
in partial fulfillment of the
requirements for the
degree

Master of Arts
in
Psychology

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I certify that I have read OCCUPATIONAL STEREOTYPING IN ELEMENTARY SCHOOL CHILDREN by Kevin Robert Kurilich, and that in my opinion this work meets the criteria for approving a thesis submitted in partial fulfillment of requirements for the Master of Arts in Psychology degree at San Francisco State University.

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OCCUPATIONAL STEREOTYPING IN ELEMENTARY SCHOOL CHILDREN

Kevin Robert Kurilich
San Francisco State University
1981

The focus of the present study was the effect adults in sex-role-reversed occupations have on children's stereotyped beliefs. The subjects were 68 children in first, third, and fifth grades from St. Leander, a parochial elementary school in San Leandro, California. Half the males and half the females from each grade listened to talks by a male nurse and a female firefighter. The other half of the children listened to two sex-role appropriate adults in the same occupations. There was no significant treatment effect, but the trends by age and sex were in the expected direction. Item analyses indicated the possibility of specific occupation effects of the treatment.

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INTRODUCTION

Sex-typing, described by Hetherington (1970) as the process by which children acquire the motives, values, and behaviors regarded as characterisically masculine or feminine, has been approached from various viewpoints. Researchers have suggested that of all the roles individuals fulfill during their lifetimes, the role prescribed on the basis of one's sex perhaps is acquired earliest and endures longest (Flerx, Fidler, & Rogers, 1976). Furthermore, sex-typing frequently has produced rigid, mutually exclusive conceptualizations of appropriate abilities and behaviors for males and females. In the present work, research in the area of sex-typing will be reviewed. Specific areas to be covered include early appearing sex differences, gender-role development through early and middle childhood, and children's knowledge of sex-appropriate behavior. Finally, research concerned with the focus of the present study, children's stereotypical beliefs about adult occupations, will be discussed.

Early Appearing Sex Differences

When discussing some of the more frequently identified sex differences in children, it must be remembered that

researchers have demonstrated that biological differences between the sexes play an important role in the development of psychological characteristics (Bardwick, 1971; Broverman, Klaiber, Kobayashi, & Vogel, 1968). Studies of constitutional or biological differences between the sexes indicate that although the child's interaction with the environment may largely determine sex-typing, biological differences in males and females are present at birth and will predispose the child to respond differentially to social and cultural forces involved in the establishment of gender role (Hetherington, 1970).

Researchers attempting to illustrate the influence of the combination of biology and differential socialization processes by identifying early sex differences in infancy have met with limited success. The most striking finding in the infant sex difference literature is that boy and girl infants are much more similar than they are dissimilar (Birns, 1976; Maccoby & Jacklin, 1974). Such similarily is illustrated clearly by research in the area concerning the sociability of human infants. The literature concerning attachment, affiliation, and various kinds of positive interactions has shown little sex differentiation (e.g., Bronson, 1972; Fleener & Cairns, 1970). The picture that has emerged is one of high sociability in both sexes (Maccoby & Jacklin, 1974). However, there may be a qualitative difference in the nature of the social relationships

most sought by the sexes. The fact that researchers have shown that by first grade boys tend to travel in larger groups, whereas girls more often establish close friendships in twos, or sometimes threes (Omark & Edelman, 1973), probably has considerable significance. Maccoby and Jacklin (1974) suspect that the size of the social groups has a great deal to do with the differing dominance patterns that have been identified between boy groups and girl groups. Larger groups cannot so easily function without a dominance hierarchy as can small groups.

Research in the area of dependency further illustrates the difficulties involved in the identification of early appearing sex differences in humans. As is the case with sociability, dependency does not appear to be differentiated by sex during the childhood years. Maccoby and Jacklin (1974) report that the tendency to seek close contact with attachment objects or their surrogates does not appear to be differentiated by sex during the childhood years when this kind of behavior is most apparent.

Another behavior domain studied as frequently as dependency, but demonstrating early appearing sex differences, is aggression. Many researchers have found boys to be more aggressive than girls. For example, Pedersen and Bell (1970) observed more aggressive acts by boys aged 2 and 3 during a play period, and McIntyre (1972) found boys (aged 2 to 4) more physically aggressive during classroom

observation. Furthermore, this behavioral sex difference has been found in a variety of cultures. Whiting and Pope (1973), observing behavior in seven cultures, found that boys engaged in more "mock fighting" (rough and tumble play), exchanged more verbal insults, and were more likely to counterattack if aggressed against in either verbal or physical form.

In addition to aggression, language development is an area where generalizations concerning sex differences have been solidly established. In fact, female superiority on verbal tasks has been one of the most solidly established generalizations in the field of sex differences. However, research in this area indicates that the two sexes perform similarly on a number of verbal tasks (Maccoby & Jacklin, 1974). The generalizations about female superiority on verbal tasks during early childhood seem to be perpetuated, at least in part, because when a sex difference is found, it is usually girls and women who obtain higher scores. Because the evidence concerning early sex differences in verbal performance is rather dated (e.g., McCarthy, 1954), any advantage for girls under 3 years of age is tenuous. More recent small scale studies (e.g., Dodd, 1972; Jones & Moss, 1971; Lewis & Freedle, 1972) have failed to demonstrate the presence of sex differences in such areas as vocalization frequency and number, length, and range of spontaneous utterances.

Research in the areas of verbal performance, dependency, and sociability illustrates the problems involved in the identification of specific sex differences of infants and preschoolers. These problems seem especially puzzling in view of the generally accepted notion that boys and girls have sharply different socialization experiences during the first few years of life. But, solid research in support of such a notion is lacking. Although research generally demonstrates that early socialization is the function of the parents (Brooks-Gunn & Matthews, 1979), a survey of the available data reveals a remarkable degree of similarity in the socialization of the two sexes.

Early Manifestations of Gender Role

Some of the strongest evidence demonstrating the importance of the differential socialization of boys and girls comes from the research of Money and Ehrhardt (1972). Their work has specifically illustrated the importance of socialization processes in the development of gender-roles. Their research suggests that the development of a normal gender-role,requires that the individual be labeled and raised in accordance with one sex before he reaches the age of 3 or 4 years.

Other researchers have begun to work with children under 3 years of age in attempts at assessing children's knowledge of their own and others' gender. Thompson (1975) was the first to demonstrate that 24-month-old infants

can discriminate fairly reliably the gender of other persons. His work focused on what children know of their own and others' gender at 24, 30, and 36 months. The tests required only verbal comprehension, sorting, and preference choices. This strategy enabled the child to demonstrate competence without interference from limited capacity for verbal expression. Thompson (1975) found that the order of acquisition of gender labels went from labeling others to labeling one's self. The 24-month-old children could identify even non-stereotypic pictures when given noun labels such as boy/girl, man/woman, man/lady, father/mother, and mommy/daddy. They also sorted clothing and common sex-typed articles beyond chance into a "boy box" or a "girl box." However, they did not yet correctly apply gender labels to their own photographs.

Research by Thompson (1975) has also demonstrated that by 30 months of age children can sort pictures of themselves into appropriate noun and pronoun categories, and identify their likenesses to dolls of their own gender. Like the 24-month-old, the 30-month-old did not yet show a preference for the choice between two identical objects, when one was labeled "for boys" and the other "for girls." The gender label was not as yet clearly operating on choices, but by 36 months, it was. Luria (1979) interprets the work by Thompson (1975) as a demonstration that by 24 months children have effectively begun sex-sorting the outside

world of people and objects. They then extend it to themselves at 30 months, and by 36 months use gender labels to guide their choices.

Thompson's (1975) work is important not only because the children were so young, but also because of its methodology. Dependence on imitation of models and verbal performance as indicators of gender knowledge has tended toward underestimation of what children know (Luria, 1979). The methods used by Thompson (1975) demonstrate a basis for characterizing a specific child's knowledge and potentially relating the state of that knowledge to his or her sex-role behaviors.

Gender-Role Development in Early and Middle Childhood

Many researchers have examined the development of gender-role throughout the preschool years and beyond. Based on adult judgments of feminine and masculine activities, a number of investigators have used picture tests for preferences in toys or activities as indicators of gender identity. Clear tendencies for girls to choose stereotypically feminine activities and boys to choose masculine ones have been found as early as such tests have been used (Sears, Rau, & Alpert, 1965). And, more recent research (Blackemore, LaRue, & Olejnik, 1979) has supported the early findings. Although it would be interesting to be able to find developmental links between early toy preferences (before 2 years of age) and the choices of more

clearly "masculine" or "feminine" toys that may be discerned from age 2 onward, Maccoby and Jacklin (1974) report that the elements that differentially attract 1-year-old girls and boys are not well enough understood to permit identifying the continuities that may exist.

Besides using toy or activity preference tests as indicators of gender identity, investigators have also utilized naturalistic observations in preschools. In early work, Sears et al. (1965) found that 4-year-old boys spent more time in the portion of a large nursery school playroom where blocks, wheel toys, and carpentry tools were to be found, whereas girls spent more time in the area having the dress-up clothes, cooking equipment, and the doll houses. More recent work has demonstrated the same phenomenon. Research by Barry and Barry (1976) indicated that 3- to 7-year-old boys gradually come to reject the stereotypically feminine environment provided in a traditional housekeeping corner in a preschool center, while girls come to accept it as an appropriate environment as they grow older. The authors suggest that these findings indicate continued stereotyping of sex-role in modern children in spite of apparent advances made by the women's liberation movement.

That other aspects of sex-typing are also developing in the preschool years is indicated by the responses of children age 4 to 6 years about whether they will be "mommies or daddies" when they grow up (Thompson & Bentler,

(1973). With only one exception, all children in this study answered the question sex appropriately. Other studies have demonstrated similar early gender-role development. For example, Kuhn, Nash, and Brucken (1978) have shown that children as young as 2 years of age possess substantial knowledge of gender-role stereotypes prevailing in the adult culture.

With research indicating that boys show "masculine" interests and girls "feminine" interests from the preschool years onward, some investigators have attempted to measure degree of sex-typing. The "It" test (Brown, 1956) has been used for this purpose. It is a projective test in which a cut-out doll, referred to as "It," is offered the opportunity to choose among a variety of sex-typed activities. Early results (e.g., Brown, 1956) indicated that girls have "It" engage in feminine activities and boys choose masculine activities for "It." However, these early results were called into question by later researchers (Thompson & McCandless, 1970) who demonstrated the possibility that the "It" doll in widest use objectively resembled a boy more than a girl, so that girls were making realistic choices for the sex they perceived the doll to be, rather than making choices projectively for themselves.

Other kinds of measures have been used to discover whether one sex is more clearly sex-typed. For example, Ross (1971) found that among 3- to 5-year olds playing

shopkeeper, boys were more concerned than girls that their customers in the play store choose a sex-appropriate toy. Working with children aged 4 to 7, Ward (1968) found that boys made more sex-appropriate toy choices than did girls. Pulaski (1970) put children aged 5 and 6 into a playroom with a variety of toys available. Boys were found to play consistently with masculine toys while girls were more likely to choose some boyish and some girlish toys. Williams, Bennett, and Best (1975), using a children's picture-story technique, demonstrated that although knowledge of sex stereotypes appears to develop in a similar manner among both boys and girls, the male stereotype is learned at an earlier age than the female stereotype. Finally, Flerx et al. (1976) have found that 3-, 4-, and 5-year-old males have more stereotyped beliefs than females. The more recent research, then, is consistent with the earlier work (e.g., DeLucia, 1963; Hartup & Zook, 1960; Rabban, 1950) showing that (a) at nursery school age, both sexes are sex-typed, and (b) starting at approximately age 4, boys become increasingly more sex-typed than girls in that they are more likely to avoid sex-inappropriate activities and more likely to prefer the activities associated with their own sex-role.

In addition to the areas examined in the aforementioned studies concerning children's sex-roles, many other aspects of sex-typing have also been given attention.

Examples of areas investigated are self-esteem (Coopersmith, 1959, 1967); confidence in task performance (Crandall, 1969); achievement motivation (Clifford & Cleary, 1972; Nowicki & Roundtree, 1971); and of particular interest in the present study, children's stereotypical beliefs about adult occupations (Looft, 1971a, 1971b; Nelson, 1978).

Children's Occupational Stereotypes

Children's stereotypical beliefs about adult occupations have been examined in various ways ranging from individual interviews (e.g., Kriedberg, Butcher, & White, 1978; Looft, 1971a, 1971b) to group-administered paper and pencil tests (Schau, 1978; Schau, Kahn, & Tremaine, 1977). Generally, researchers in this area have found that boys and girls develop career interests that appear to adhere closely to traditional sex-role stereotypes beginning as early as first or second grade (Beuf, 1974; Looft, 1971a, 1971b; Siegel, 1973) and continuing through adolescence (Olive, 1973; Shinar, 1975). However, many other findings in this area must be questioned because of methodological shortcomings.

One methodological problem is illustrated in a series of studies by Scheresky (1976, 1977, 1978). Elementary school children (6-, 8-, and 10-year-olds) were shown partially lighted, above the waist silhouette photographs of men and women in different poses for 15 occupations. The children were then instructed to choose who

could perform each job. However, during the instructions the children were also told to pick who performs the job. Because the issues of who could or who does perform the jobs were not separated, the finding that there was no significant difference between the responses of boys and the responses of girls in relating their acceptance of occupational roles for men and women is of questionable significance.

In attempting to discover whether there are sex differences in children's expression of career aspirations, other investigators have found conflicting results. Even when the methodology is nearly identical between studies, findings concerning sex differences often differ. The controversy centers around a number of studies (Hewitt, 1975; Looft, 1971a, 1971b; Siegel, 1973; Vondracek & Kirchner, 1974) which found significant sex differences in the variety of vocations nominated for career choices by first to third graders. These findings have not been substantiated by other researchers (e.g., Kriedberg et al., 1978; Nelson, 1978). Both groups of researchers used an individual interview. Subjects were first put at ease with informal conversation and then were asked: "What would you like to be when you grow up? What do you want to do?"

As would be expected, the dissimilar findings between the two groups of researchers has led to different interpretations of the reality of the situation. Findings

such as those by Looft (1971a), who found first- and second-grade boys aspiring to a greater variety of vocations than first- and second-grade girls, have been interpreted as suggesting that girls learn quite early in life the societal expectations regarding vocational choices. On the other hand, investigators such as Kriedberg et al (1978), who found no significant sex differences in the number of different vocations nominated by second graders, and also found that some girls in their sixth-grade sample nominated non-traditional vocations, have offered different interpretations. Kriedberg et al. suggest that although goals associated with the women's liberation movement (e.g., changes in sex-role expectations) are not clearly demonstrated in the vocational aspirations or expectations of young children, they may be reflected in the aspirations of adolescent females.

Further illustrating the problems involved in delineating sex differences in children's stereotypical beliefs about adult occupations is research by Tremaine and Schau (1979). In this study, 120 children were individually interviewed, asked forced-choice questions, and given an open-ended questionnaire concerning their occupational choices. While the highly consensual selection of nurse and teacher as free choice aspirations by the girls concurred with Looft's (1971a, 1971b) findings that girls express more limited and highly stereotyped job choices,

results on the forced-choice responses presented a different picture. For the nine jobs that were listed, girls were as likely as, or more likely than, boys to say they would like those jobs. Thus, girls were far less limited in their job interests than boys when asked whether they would like a specific job. Tremaine and Schau (1979) offer an interesting explanation for the seemingly contradictory findings. What seems to be contradictory is likely due to the difference in choice formats. When asked to make an overall free choice, girls' responses were limited in number and nature, but if offered numerous specific choices they showed less restrictiveness than boys.

Other researchers have also found girls to be less restrictive than boys on formats where children are asked who can or who should fulfill certain occupations. For example, Garrett, Ein, and Tremaine (1977) asked first-, third-, and fifth-grade children to rate each of 40 adult occupations as male, female, or neutral in terms of their beliefs about which sex has the abilities to perform the job. Results showed that within jobs classified as neutral and male, females were less restrictive in their beliefs about who has the abilities to perform the job. In a similar study, Schau (1978) found some significant sex differences between first-, third-, and fifth-grade boys and girls on their responses to questions about who can and who should fulfill various occupations. Although sex

differences were not consistent across the schools used in the study, when they existed boys were more stereotyped than girls in both their "can" and "should" responses.

As well as sex differences, children's stereotypical beliefs about adult occupations have also been shown to vary with age. Important findings in this area concerning age include the following: (a) from preschool to fourth grades older children are more likely to avoid job choices they previously attribute to the opposite sex (Tremaine & Schau, 1979); (b) according to census data, the jobs children choose for themselves (from preschool to fourth grades) become more realistic with age (Tremaine & Schau, 1979); and (c) from ages 2 1/2 to 6 1/2 the match between attribution of jobs to different sexes (based on responses by children concerning who should perform a number of jobs) and census reality increases (Schau & Bush, 1979). In view of these findings, the results of a study done by Nelson (1978) are rather surprising. Nelson found that when children (from nursery school to third grade) are asked what they want to be when they grow up, the range of occupations mentioned tends to increase with age, as both boys and girls express a broader range of choices for themselves than for the opposite sex.

With the above study by Nelson (1978) demonstrating an increase in children's occupational aspirations with age, it would also be expected that older children's views

concerning adult occupations would tend to be less stereotyped. A number of studies designed to answer this question have confirmed such an expectation. For example, Shepard and Hess (1975) demonstrated that when children are asked about who (males, females) should perform a number of different adult occupations, overall liberality (defined as the number of "either male or female" responses) increases from kindergarten to eighth grade. Using similar methods, Nemerowicz (1979) found that older children (sixth graders) are less likely to mention a distinction in work and housekeeping roles as a definition of the sexes, and are less likely to see women and men as incapable of work and household roles, respectively. Katz (1979) examined age as a liberalizer by developing a measure of sex-role flexibility and through use of a self-concept questionnaire. Katz demonstrated that third graders were more flexible than kindergarteners in their own occupational choices, toy and activity preferences, perceived paternal influence, and they show less gender bias. However, Katz also found that with increasing age (from kindergarten to third grade) children's tolerance toward other children in cross-sex activities diminishes.

The diminishing of children's stereotypical beliefs about adult occupations with age has also been demonstrated on tests that allow for neutral as well as stereotyped response categories. Garrett et al. (1977) used techniques

allowing for both neutral as well as stereotyped responses and found that older children asked who can (has the ability to) perform a number of jobs stereotypically neutral or male were more flexible in their stereotypes than younger children (subjects were first-, third-, and fifth-graders). Other research that allowed flexibility of responses has supported the initial findings of Garrett et al. (1977). Both Schau (1978) and Schau et al. (1977) used the same measure of sex-role flexibility (as Garrett et al., 1977), but asked first-, third-, and fifth-grade children who should perform as well as who can perform a number of adult occupations. Besides demonstrating that all the children were more stereotyped in their "should" responses than in their "can" responses, these studies demonstrated that younger children were more extreme in their ratings of capabilities and importance of the jobs. Furthermore, older children were more flexible than younger ones on both their "should" and "can" responses, indicating that younger children tend to be more stereotyped than older ones concerning adult occupations.

In addition to age and sex, researchers have examined other factors influencing children's stereotypical beliefs about adult occupations. For example, maternal employment has been examined as a predictor of children's sex-role stereotyping (Marantz and Mansfield, 1977; Miller, 1975). Besides supporting previous findings (Garrett et al., 1977; Katz, 1979; Nemerowicz, 1979; Schau, 1978; Schau et al.,

1977) indicating that older children have less rigid sex stereotypes about adult occupations, Marantz and Mansfield (1977) found that in 5- to 11-year old girls, daughters of working mothers had fewer sex-role stereotypes than daughters of non-working mothers. Findings by Miller (1975) were similar. She found that parental roles are less traditional in families where the mother is employed outside the home, leading to less traditional sex-role stereotypes on the part of kindergarten-age duaghters.

With research indicating that children's stereotypical beliefs about adult occupations are affected by various factors, it is not surprising that various methods have been used as a means of not only decreasing such beliefs, but also increasing occupational knowledge. Work by Riley and Marotz-Baden (1979) exemplifies research done attempting to increase children's occupational knowledge. In this study, preschool and elementary school children were exposed to a teacher administered curriculum including non-sex-stereotyped modules and toys. Results suggested that the modules and toys were somewhat influential in personal career choices but had more impact on perceptions of what occupations are acceptable for both sexes.

Other researchers in this area have also increased some aspects of children's occupational knowledge. Jeppesen (1971), using a packet of occupational information and a film of local occupations demonstrated that exposure to

these increased second- to sixth-grade children's career awareness. And in a study designed to allow analysis of different treatment effects, McCordick (1975) used teacher only, teacher and counselor, and counselor only groups to administer a vocational guidance program. Results indicated that such a program can be an effective procedure to facilitate positive change in knowledge of occupations as measured by a knowledge of occupations test. Especially interesting in this study was that the counselor only treatment was significantly more effective than a teacher/consultant and a teacher only group at grade two. However, the counselor only and the teacher/consultant groups were more effective than the teacher only group at grade six.

Other studies have demonstrated that a curriculum designed to reduce children's sex-stereotyping of adult occupations can be successful. Research by Parks (1976) demonstrated that a combination of activities, such as encouraging children to think about occupations for themselves and exposure to career education, can have a significant impact on the stereotyping behavior of fourth- and fifth-graders. A study by Bucher (1974) found that exposure to an occupational unit benefits both sexes in regard to positive changes in beliefs concerning sex-role stereotyping of occupations, occupational knowledge, and opposite sex occupational preference.

Despite the fact that studies such as those of

Bucher (1974) and Parks (1976) have demonstrated the effects of a curriculum in general, such work has failed to identify the specific effects of the various methods used. Research by Vincenzi (1977) further illustrates this problem. Although this study demonstrated that the number of occupations viewed by sixth graders as sex-stereotyped could be reduced, the author's failure to design the study in order to analyze the effects of the various treatments (which were meeting women in non-traditional occupations, discussion, and exposure to magazine articles about various careers) leaves many unanswered questions.

Other studies whose design permits analysis of different treatment effects have met with varying results. Selkow (1978) investigated the effectiveness of filmed modeling with and without symbolic verbalization, in changing children's vocational aspirations. Particularly explored were the effects of modeling on the sex-stereotyping of occupational choice and the number of job selections. Children from 5- to 7- were randomly assigned to three experimental groups. Experimental group one (the film group) was exposed to films depicting females in nontraditional careers. Each film was seen twice. Experimental group two (the film-verbalization group) saw the same films as group one, but during the second showing the sound was turned off and they were instructed to talk aloud about what they were observing. Experimental group three was

the control and did not see the films. Results showed that neither "orientation Scores" (average degree of sex stereotyping) nor "number Scores" (actual number of occupations chosen) changed significantly for any of the treatment groups.

Research by Flerx et al. (1976) has had more success with the use of films in changing children's beliefs about occupations. Flerx et al. (1976) conducted an experiment to examine the utility of symbolic modeling stimuli in modifying sex-role stereotypes. Children from 3 to 5 years of age were randomly assigned to one of three conditions. The children in one treatment condition were read a program of literature composed of picture books that have been recommended by several surveys of children's literature as containing an unusually egalitarian portrayal of the roles of males and females in society. Children in a film condition saw a number of commercial films depicting egalitarian acts modeled by both males and females. Finally, children in the traditional treatment condition were read a number of books that contained particularly traditional, stereotyped male and female models. Results showed that the egalitarian symbolic models in films produced more enduring changes in children's stereotyped beliefs on several measures than similar models in picture books.

Besides focusing on especially designed curriculum and films, researchers have also looked specifically at

the effects reading materials have on changing children's stereotyped beliefs. Studies in this area have demonstrated that both boys and girls (fifth graders) remember more masculine sex-typed characteristics of female characters (Koblinsky, Cruse, & Sugawara, 1978), and that at second- and fourth-grade levels the expression of sex-stereotypes seems to be facilitated by a male examiner (Williams et al., 1975).

Other studies have demonstrated that the content in books can affect children's beliefs about adult occupations. For example, Barclay (1974) found that a series of stories about working women decreased the rigidity of kindergarten girls' perception of appropriate women's work. And other investigators have reported similar findings. Ashby and Wittmaier (1978) demonstrated that girls who heard non-traditional stories rated traditionally male jobs and characteristics as appropriate for females more than girls who heard traditional stories, and Schau (1978) found that at least some aspects of children's beliefs about adult occupations can be changed using reading materials within a school system. Finally, in a similar study, Flerx et al. (1976) showed that five 30-minute reading sessions with books portraying egalitarian roles increased children's egalitarian beliefs about peer and adult activities and personality characteristics.

Other studies, however, have demonstrated that some

beliefs and behaviors (including children's beliefs about adult occupations) are not easily changed through presentation of models in stories. Fisher and Torney (1976) verbally presented one story which showed models engaging in either dependent or independent behaviors to preschool children. This exposure did not affect the children's dependent behavior as measured by time elapsed before asking for help with a difficult problem. Schau et al. (1977) used one role-reversed story about each of 10 occupations in which the main character in each story was of the opposite sex from the elementary school aged children's beliefs about sex requirements for those jobs. The use of the stories did not change the children's beliefs.

Purpose of the Study

Previously mentioned studies (e.g., Schau, 1978; Schau et al., 1977) designed to examine the effects of reading materials on children's beliefs about adult occupations represent a more extensive methodology than other studies (e.g., Shepard & Hess, 1975; Vondracek & Kirchner, 1974). The use of a gender continuum which contains neutral as well as stereotyped response categories allows measurement of sex-role flexibility of children's sex-related occupational stereotypes. By using the measure of sex-role flexibility developed by Schau and Kahn (1978) to assess children's sex-related occupational stereotypes, the purpose of the present study was to examine the impact

of the introduction of adults in sex-role reversed occupations upon elementary school children's sex-stereotyped beliefs about adult occupations. Unlike other research (e.g., Vincenzi, 1977), the present study examined only the effects that sex-role reversed adults have upon children's beliefs about adult occupations. In addition, by using first-, third-, and fifth-grade boys and girls, additional information concerning sex and age differences in children's stereotypical beliefs about adult occupations was obtained. The hypotheses under investigation were the following:

1. Children in a treatment group exposed to adults in sex-role-reversed occupations will have significantly less stereotyped beliefs concerning adult occupations than children in a control group exposed to adults in sex-appropriate occupations.

2. Boys will be more stereotyped than girls in their beliefs about who should perform adult occupations.

3. With increasing age, children's stereotyped beliefs about who should perform adult occupations will decrease.

4. Exposure to adults in nontraditional occupations will significanlty affect the children's beliefs concerning who they think should perform other jobs as well as those jobs performed by the adult sex-role-reversed models.

METHOD

Subjects

The subjects were 22 first-grade, 20 third-grade, and 26 fifth-grade children from St. Leander, a parochial grammar school in San Leandro, California. The first grade consisted of 10 males and 12 females; the third grade, 9 males and 11 females; and the fifth grade, 11 males and 15 females. The subjects were middle-class and predominantly white. The only criterion for selection of these subjects was their enrollment in the necessary grade level.

Materials

Testing Instrument. The adult occupations test, a paper and pencil assessment instrument designed by Schau and Kahn (1978) to measure the sex-role flexibility of children's sex-related occupational stereotypes, was used for both the pre- and post-test. Of the 21 occupations which composed the test, seven were male stereotyped, seven female stereotyped, and seven were gender neutral occupations. Subjects' answer sheets consisted of a five-point rating scale utilizing both words and pictures. The five response options (for the 21 occupations children were asked about) included "only women" (pictorially

represented by four female heads), "more women than men" (three female heads, one male head), "about the same number of women and men" (two female heads, two male heads), "more men than women" (three male heads, one female head), and "only men" (four male heads).

Role models. For the treatment group, a 27-year-old male Caucasian nurse and a 26-year-old female Caucasian firefighter served as the role-reversed models. For the control group, a 25-year-old female Caucasian nurse and a 29-year-old male Caucasian firefighter served as the male role-appropriate models.

Procedure

Pre-test. The subjects at each grade level were given the adult occupations test by the experimenter (a 24-year-old, male Caucasian graduate student) in their classrooms. The experimenter was introduced by the teachers as someone there to ask the children their beliefs about some jobs that people do. The only variation from the standard suggested procedure was the use of the word "should" in asking subjects their beliefs about each of the 21 occupations on the test.

Treatment. The treatment phase of the present study took place 7 days after administration of the pre-test. The subjects in first, third, and fifth grades were told by their teachers that the class was going to

meet two people who were going to talk to them about health and safety. The teachers told the students that half the class would hear speakers in the auditorium and half the class would hear speakers in the gymnasium. Half of the female and half of the male subjects at each grade level, previously selected at random, had their names called and went to the school auditorium. The remaining children at each grade level were told that they would hear two speakers (who would talk to them about health and safety) in the gymnasium. These children then went to the school gymnasium.

When the treatment group subjects arrived in the auditorium the male nurse and the female firefighter were seated in front of the auditorium. A female teacher present in the auditorium requested that the subjects listen carefully to the speakers and told the children that the nurse would be talking about taking good care of one's body, and the firefighter would talk to them about fire safety in the home. The teacher also told the children that there wouldn't be enough time for questions afterwards. The teacher then introduced the speakers to the subjects, identifying them by name and occupation. The firefighter was asked to come to the middle and front of the assembly and give her talk. Immediately following the firefighter's talk, she was seated and the teacher reintroduced the nurse. The nurse rose, came to the front

of the assembly, and gave his talk. At the end of the nurse's talk, the teacher present thanked the speakers.

The above procedure was also followed for the speakers who spoke to the children in the control group in the gymnasium. The only exception was that the control group heard speeches by sex-role-appropriate speakers. The firefighter was male and the nurse was female.

The four speakers were allowed to compose their own talks. However, the two firefighters and the two nurses discussed the content of their speeches beforehand in order to cover the same general areas. The speeches by the firefighters were short talks (15 minutes) about how to keep a home fire safe, and the nurses talked for 15 minutes about how children could keep their bodies healthy through good hygiene and careful eating habits. The speakers were given guidelines to follow for their speeches. They were requested not to mention their sex, how they performed their job as a female or male, and how many other females or males performed their jobs.

Post-test. Immediately following the speeches by the firefighters and nurses, the adult occupations test was administered to all the first-, third-, and fifth-grade children in the auditorium or gymnasium. The administration proceeded exactly as the pre-test, with children given directions about answering the questions according to their beliefs about who should perform the

various occupations. Three undergraduate male students (ages 20-25) assisted the experimenter in administration of the post-test.

RESULTS

Of the 21 occupations which composed the adult occupations test, the seven male stereotypical and seven female stereotypical items were scored. Subjects' responses to both the pre- and post-test were scored in the following way. The most stereotyped response on an item (an "only men" response on a male item or an "only women" response on a female item) was scored as a five for that item. The next most stereotyped response (a "more men than women" response on a male item or a "more women than men" response on a female item) was scored as a four. A non-stereotyped response on an item ("about the same number of women and men") was scored as a three. If a subject marked the "more women than men" response on a male item or the "more men than women" response on a female item, he or she was scored two for the item. Finally, a subject marking the "only men" response on a female item or the "only women" response on a male item received a score of one for the item. The analysis of the results of the present study is presented in two sections: subject results and item results.

Subject Results

For scoring purposes, the seven gender neutral items on the adult occupations test were deleted. By adding together each subject's scores on the seven male and seven female stereotyped items on the test, every subject received a total stereotyping score which could range from 14 to 70. Low scores indicated less stereotyped beliefs, and higher scores indicated more stereotyped beliefs. Therefore, every subject had two total stereotyping scores, one on the pre-test and one on the post-test. Table 1 presents the total stereotyping scores for all groups, and Figures 1, 2, and 3 present the average stereotyping scores by grade, sex, and group.

The total stereotyping scores of the subjects in the present study were analyzed by a four way mixed design analysis of variance. Grade (first, third, fifth), sex (male, female), and group (treatment, control) were between subjects factors, and test (pre-, post-) was the within subjects factor. Table 2 summarizes the data from this analysis. Grade, sex, and group were not significant factors, but a significant main effect for test, $F(1,56) = 54.25$, $p < .001$, and a significant interaction of grade by test, $F(2,56) = 3.30$, $p < .05$, were found. Figure 1 illustrates the main effect for test and the interaction of grade by test. In Figure 1 it can be seen why the overall average stereotyping score on the pre-test (61.4) was significantly higher than the overall average stereotyping score on the post-test

TABLE 1

Means, Standard Deviations, and Cell Frequencies for Treatment and Control Groups' Total Stereotyping Scores

	Pre-Test			
	Treatment Group		Control Group	
	Males	Females	Males	Females
Grade 1	$\bar{X}$ = 65 SD = 1.87 n = 5	$\bar{X}$ = 62.1 SD = 4.21 n = 6	$\bar{X}$ = 59.4 SD = 3.71 n = 5	$\bar{X}$ = 63.3 SD = 2.73 n = 6
Grade 3	$\bar{X}$ = 62.2 SD = 4.34 n = 4	$\bar{X}$ = 62.5 SD = 4.65 n = 4	$\bar{X}$ = 63.6 SD = 4.50 n = 5	$\bar{X}$ = 61.3 SD = 3.82 n = 7
Grade 5	$\bar{X}$ = 60.8 SD = 3.87 n = 6	$\bar{X}$ = 58 SD = 9.33 n = 7	$\bar{X}$ = 63.6 SD = 3.43 n = 5	$\bar{X}$ = 57.4 SD = 8.21 n = 8

	Post-Test			
	Treatment Group		Control Group	
	Males	Females	Males	Females
Grade 1	$\bar{X}$ = 62.4 SD = .55 n = 5	$\bar{X}$ = 57.5 SD 5.20 n = 6	$\bar{X}$ = 55.4 SD = 5.22 n = 5	$\bar{X}$ = 61.8 SD = 1.94 n = 6
Grade 3	$\bar{X}$ = 56.2 SD = .95 n = 4	$\bar{X}$ = 54.7 SD = 2.87 n = 4	$\bar{X}$ = 58 SD = 2.91 n = 5	$\bar{X}$ = 57.1 SD = 5.55 n = 7
Grade 5	$\bar{X}$ = 57 SD = 3.35 n = 6	$\bar{X}$ = 56.7 SD = 10.29 n = 7	$\bar{X}$ = 61.4 SD = 3.51 n = 5	$\bar{X}$ = 53.6 SD = 9.51 n = 8

FIGURE 1

Average Stereotyping Scores by
Grade and Test

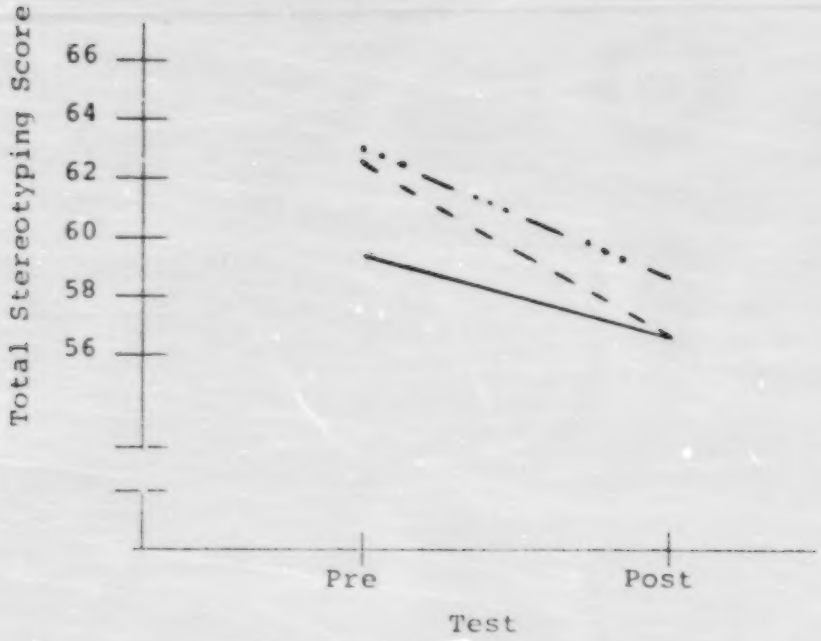


FIGURE 2

Average Stereotyping Scores by Sex and Test

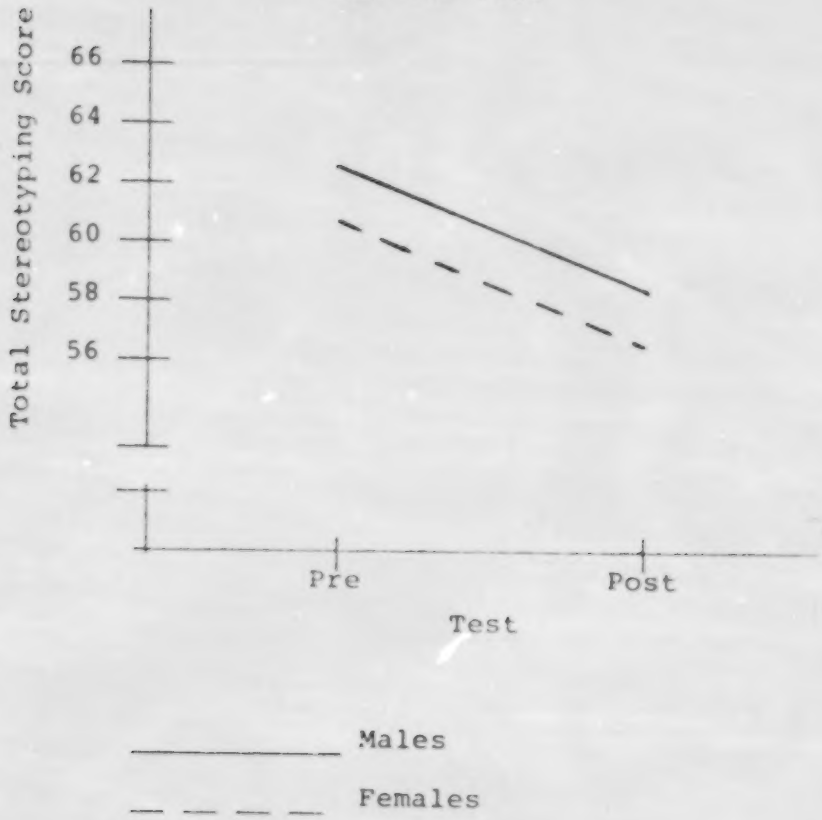


FIGURE 3

Average Stereotyping Scores by Group and Test

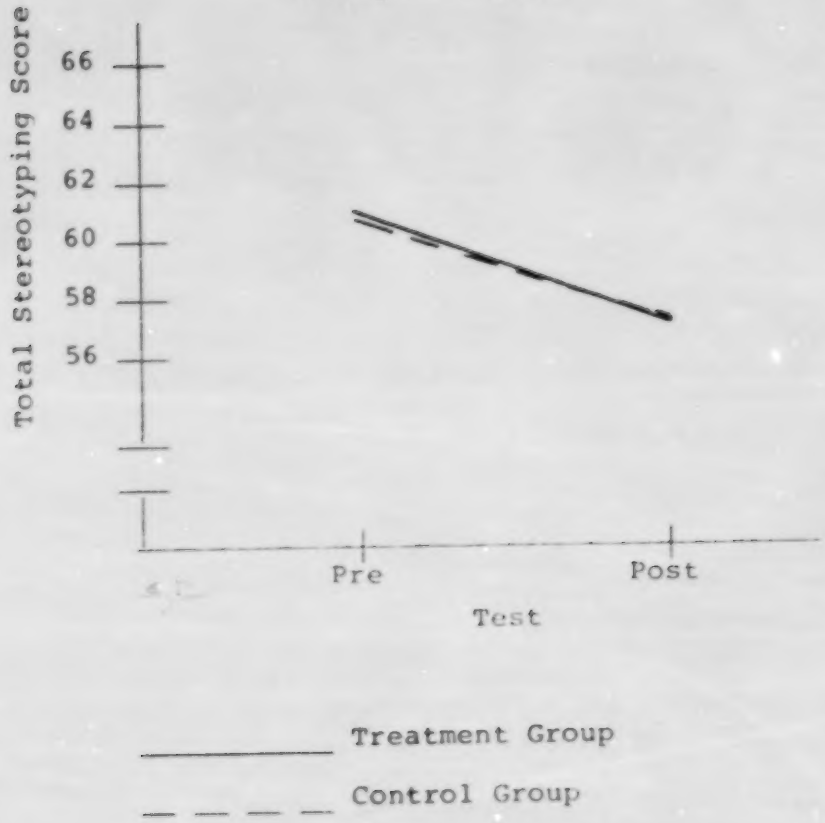


TABLE 2

Analysis of Variance of Total Stereotyping Scores by Grade, Sex, Experimental Group, and Test

Source	df	MS	F
Total	135		
A - Grade	2	84.27	1.56
B - Sex	1	88.07	1.63
C - Group	1	.06	.00
AB	2	65.04	1.21
AC	2	17.97	.33
BC	1	5.02	.09
ABC	2	150.71	2.80
E(ABC)	56	53.88	
D - Test	1	455.89	54.25**
AD	2	27.70	3.30*
BD	1	2.12	.25
CD	1	6.06	.72
ABD	2	.34	.04
ACD	2	4.12	.49
BCD	1	2.74	.33
ABCD	2	13.20	1.57
DE(ABC)	56	8.40	

*$p < .05$
**$p < .001$

(57.5). Figure 1 also shows that the overall stereotyping scores of the third graders decreased (from pre- to post-test) more than those of the first and fifth graders.

Item Results

Presented in Figure 4 are the treatment and control groups' average difference scores (post-test minus pre-test) for each of the 14 stereotyped items. A score below the horizontal (0) line shows an average decrease in the stereotyping score for the item. For example, on item 2 subjects in the treatment group decreased their stereotyping scores by an average of 1 point on the post-test. In figure 4 it can be seen that the average stereotyping scores of the treatment group decreased the most on items 2 (firefighter) and 5 (nurse).

Table 3 presents the average change scores on items in which the two groups were exposed to either sex-role reversed (treatment group) or sex-role appropriate (control group) adults fulfilling the occupation. Along with Figure 4, Table 3 shows that although subjects in the treatment group decreased their stereotypical answers to the fire-fighter and nurse items more than the control group, on the whole there was no general decrease in stereotyping scores on the other 12 stereotyped items on the test.

Presented in Figures 5 and 6 are the average difference scores (post-test minus pre-test) by grade and sex for each of the 14 stereotyped items. Figure 5 shows that

FIGURE 4

Pre to Post Difference Scores of
Treatment and Control Groups

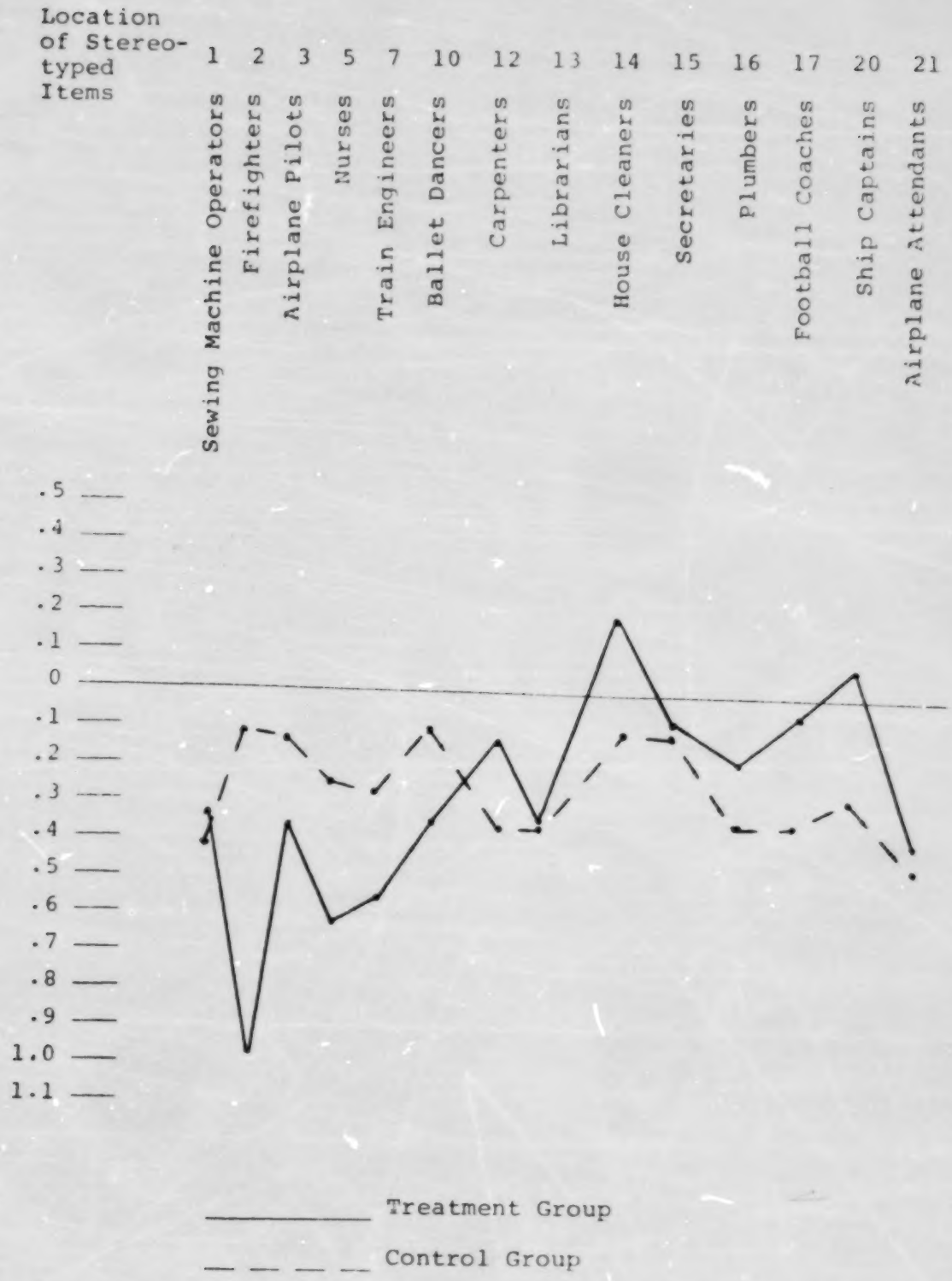


TABLE 3

Mean Change Scores of
Treatment and Control Groups

	Treatment Group		Control Group	
	Pre-	Post-	Pre-	Post-
Item 2 (Firefighter)	4.65	3.68	4.66	4.55
Item 5 (Nurse)	4.87	4.25	4.66	4.41
All items except 2 and 5	4.33	4.12	4.32	4.04
Overall (14 items)	4.39	4.10	4.37	4.10

FIGURE 5

Pre to Post Difference Scores of
First, Third, and Fifth Graders

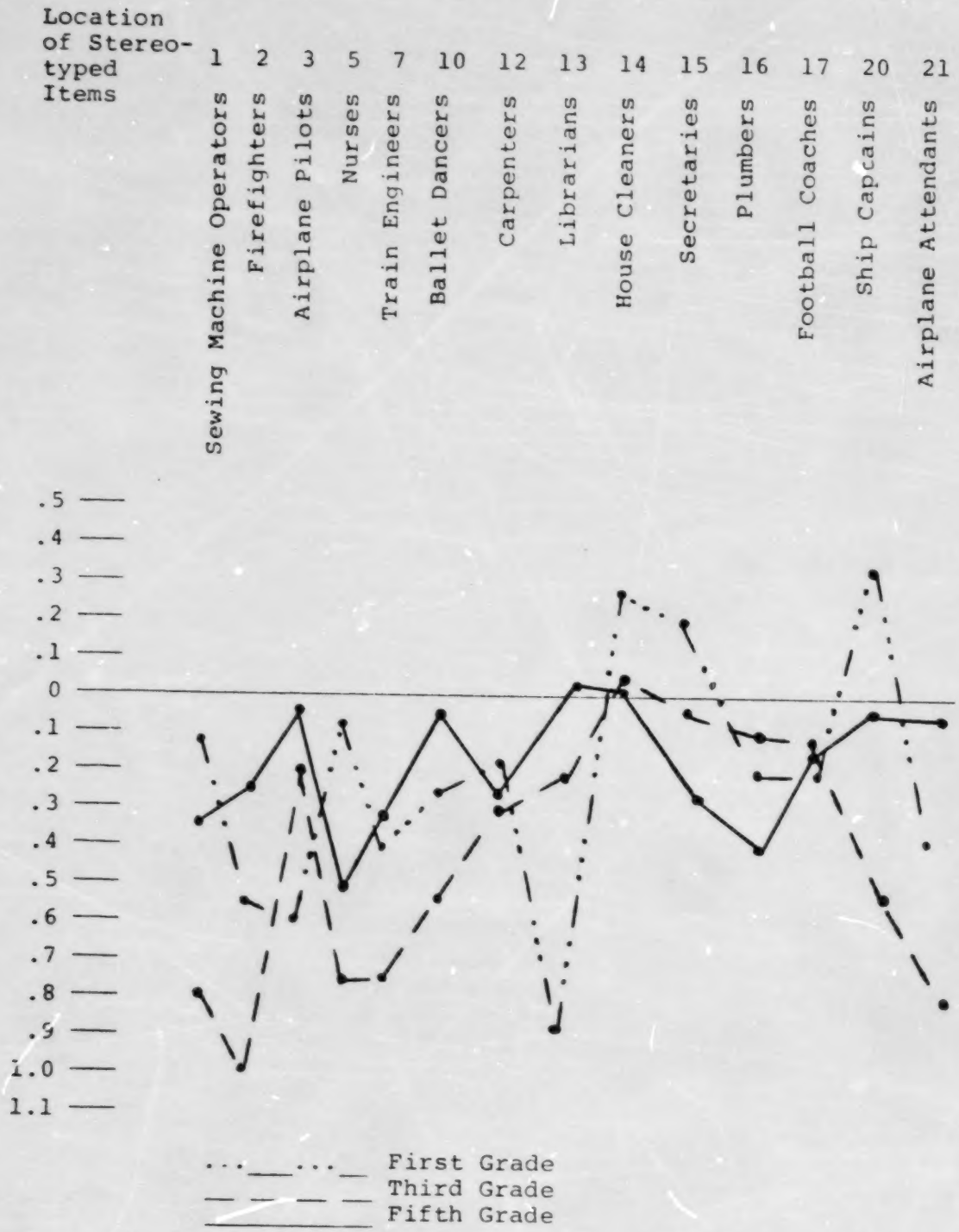
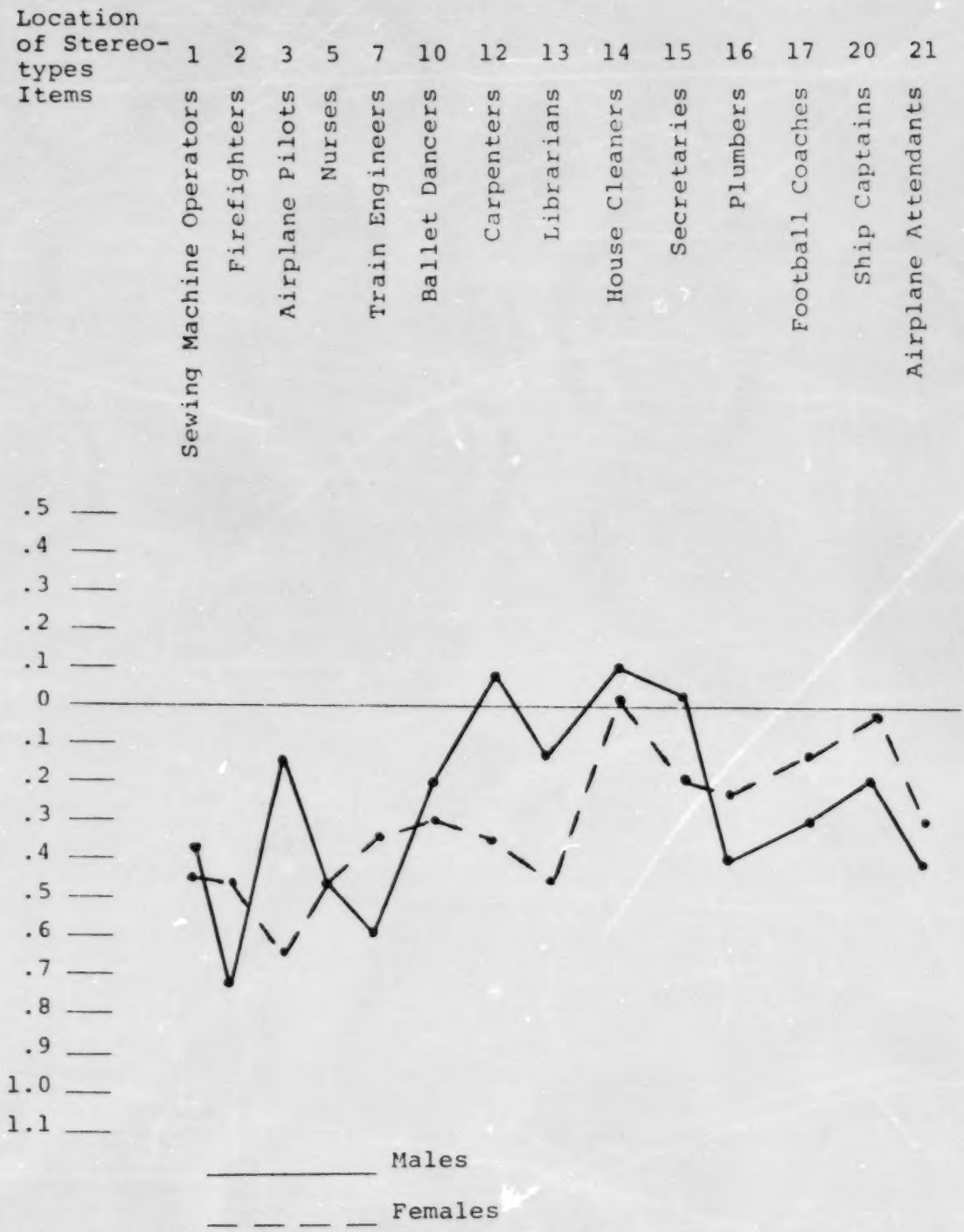


FIGURE 6

Pre to Post Difference Scores of
Males and Females



with increasing age, subjects' scores were more consistent from pre- to post-test. The variance in subjects' difference scores for the 14 stereotyped items was .14 for the first grade, .11 for the third grade, and .03 for the fifth grade.

DISCUSSION

The results of the present study did not provide statistically significant support for Hypotheses 1, 2, or 3. The non-significant treatment effect is consistent with other studies using similar treatments which have been unable to change children's stereotypical beliefs about adult occupations (Selkow et al., 1978; Schau et al., 1977) and personal occupational aspirations (Selkow et al., 1978).

Researchers using treatments including models purposely telling children how they may grow up to be anything they wish (Flerx et al., 1976) have been more successful in changing children's stereotypical beliefs. However, research like the present study probably more closely portrays reality. Children are probably more likely to come across adults in sex-role-reversed occupations than to see a series of films or speakers discussing how men and women may grow up to perform any job they want.

The one significant main effect in the present study was for test (pre-, post-). This finding supports those reported by previous researchers (Schau, 1978; Schau & Kahn, 1978) using the same test instrument to assess children's beliefs about adult occupations. As researchers have previously found, both treatment and control groups

in the present study became less stereotyped on the post-test. With repeated administration of the adult occupations test, a practice effect seems to manifest itself in a decrease in overall stereotyping. Previous researchers have been unable to adequately explain this decrease. Perhaps the more children think about which sex should fulfill adult occupations, the less stereotypic their thinking becomes. However, to arrive at an adequate explanation of this phenomenon, more research focusing on this characteristic of the testing instrument must be conducted.

While Hypothesis 2 was not statistically supported, the findings were in the expected direction. And the direction of the findings is similar to previous studies (e.g., Garrett et al., 1977; Schau, 1978) in this area. Furthermore, since other researchers (Schau, 1978) have not consistently found boys to be significantly more stereotyped on this measure, the findings of the present study contribute to an emerging trend. Previous research combined with the present study demonstrates that although there is not always a sex difference in children's beliefs about adult occupations, when a difference does exist it is boys who are more stereotyped.

Like the main effect for sex, findings concerning age (Hypothesis 3) were in the expected direction. The first graders had the highest average stereotyping scores, the third graders the next highest, and the fifth graders

were the least stereotyped. Although not statistically significant, the direction of this finding supports findings by other researchers (Schau, 1978; Schau et al., 1977) who have used the same testing instrument. When asked about who should perform adult occupations, older elementary school children (fifth graders) tend to be the most flexible in their beliefs. Perhaps older children have been exposed to more sex-role-reversed adults, thus convincing them that it is permissible for both men and women to perform various adult occupations. Another possibility is that fifth graders, who are generally at a higher cognitive level than first or third graders, think about the abilities needed to perform occupations and decide that both men and women have them. To provide more definitive answers about this issue, further research focusing upon age differences in children's stereotypical beliefs is needed.

The only significant interaction found in the present study was that of grade by test. Inspection of Figure 1 reveals that the third graders' total stereotyping scores decreased on the post-test more than the other two grades. On the pre-test the third graders had nearly the same average total stereotyping score as the first graders and were more stereotyped than the fifth graders. However, on the post-test the third graders were less stereotyped than the first graders and had the same average stereotyping score as the fifth graders. These findings suggest that with repeated administration of the testing instrument,

the average stereotyping scores of the third graders tend to decrease more than either first- or fifth-graders' scores. And, this cannot be attributed to the third grade treatment group because there was no triple interaction for grade, treatment, and test (ACD). The interaction of grade and test seems to suggest that relative to first and fifth graders, the third graders may be in the time of transition of their thinking concerning adult occupations. Perhaps because of their being at a transitional age, the third graders were the group who changed the most in a less stereotyped direction in their overall stereotyping scores.

Some of the more interesting findings of the present study are those pertaining to Hypothesis 4. Figure 4 shows that the largest average item decreases from pre- to post-test for the treatment group were on the firefighter and nurse items (2 and 5). Several factors may be involved in these decreases. First, they could be due to the exposure the treatment group had to the two sex-role-reversed adults in the two occupations. However, because the test items were arranged so that the firefighter and nurse items appeared at the beginning of the test, it may be that the treatment group decreased their stereotyped beliefs about firefighters and nurses because they were asked about them immediately following exposure to the sex-role-reversed adults. To explore this possibility, future

researchers should repeat the experiment with the fire-fighter and nurse items relocated to a position toward the end of the test.

Figure 4 also shows that subjects in the treatment group decreased their stereotypical beliefs on the post-test more than subjects in the control group on only five of the first six stereotyped items which appeared on the test. On the last eight stereotyped items appearing on the test, the control group decreased their stereotypical beliefs more than the treatment group. In fact, on the house cleaner and ship captain items the treatment group actually became more stereotyped on the post-test. A possible explanation for the unexpected pattern of scores of the treatment group on the last eight items on the test is that this was a trial effect across the items which would have manifested itself regardless of the order in which the stereotyped items appeared on the test. In other words, the effects of the treatment may have been present only on the first half of the test. It may be that the treatment would have only temporarily decreased subjects' stereotyped beliefs no matter which occupations they were immediately asked about.

A possible explanation for the increase in the stereotyping scores of the treatment group on the house cleaner and ship captain items is that the increases were a kind of compensatory effect. Perhaps the decreased stereotyping of the treatment group subjects on the

firefighter and nurse items in some way prompted them to increase their stereotypical thinking on the house cleaner and ship captain items. In this way the treatment subjects could keep an overall equilibrium in their total stereotypy concerning adult occupations.

Another interesting phenomenon shown in Figure 4 is the scores of the treatment group on the stereotyped items following the firefighter and nurse items. The possibility exists that the combination of the firefighter and nurse items being so close together and also at the beginning of the test may have been responsible for the decreased stereotyping scores of the treatment group on the first five of six stereotyped items on the test. This possibility, combined with the possibility of the aforementioned compensatory effect occurring later in the test, brings to light another explanation for the pattern of scores shown in Figure 4. Perhaps the treatment group was affected by the role-reversed models, and their changed beliefs "spilled over" to nearby stereotyped items on the test. However, without any treatment items on the later part of the test, they began to compensate to bring their total stereotypical beliefs about adult occupations to a kind of equilibrium.

Altogether, Figure 4 shows that even if exposure to the role-reversed speakers was responsible for the decrease in the stereotyping scores of the treatment group on the

firefighter and nurse items, this exposure did not generally decrease scores on the other stereotyped items. Therefore, hypothesis 4 was not supported by the results of the study.

An unexpected finding in the present study is illustrated in Figure 5. Figure 5 shows the first graders to be the most inconsistent in their beliefs from pre- to post-test. While moving in a less stereotyped direction on some stereotyped items, they moved the opposite way on others. In contrast, the fifth graders' difference scores on the stereotyped items are generally closer to zero. The fifth graders seemed to have made up their minds on the pre-test and didn't change much on the post-test. The pattern of scores in Figure 5 presents the possibility that as elementary school children grow older they begin to have more consistent generalized beliefs about who should perform adult occupations. However, the cross-sectional nature of the data limits any conclusions concerning this finding.

In summary, the present study has uncovered a number of interesting findings concerning children's beliefs about adult occupations. Of particular interest are the possibilities of less generalized trial effects of the experimental manipulation. In order to examine such effects future researchers should change the order of the items on the testing instrument and use different and/or more sex-role-reversed adults as a treatment. Furthermore, if two schools are used, future researchers could delay the

post-test with minimum concern about control and treatment group subjects coming in contact before the post-test.

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